C L A I M S

1. An information transmission method comprising: on a transmitting side, adding reconstruction information required for reconstructing contents of header information or part of the header information to encoded information and transmitting an added result; and on a receiving side, performing an error check with respect to the header information or part of the header information, and decoding the encoded information by using the reconstruction information as a substitute when an error is detected by the error check.

2. A method according to claim 1, which includes adding instruction information indicating addition of the reconstruction information to the header information.

3. A method according to claim 1 or 2, wherein the encoded information contains a picture code stream obtained by compress-encoding a picture signal, and the reconstruction information contains information indicating a display timing of each picture frame of the picture code stream.

4. A method according to claim 1 or 2, wherein the encoded information contains a picture code stream obtained by compress-encoding a picture signal, and the reconstruction information contains information indicating a prediction mode of each picture frame of the picture code stream.

5. An encoding apparatus comprising:

means for segmenting encoded information into not less than two layers, and adding a sync signal and header information required for decoding to each layer;

means for transmitting, as reconstruction information for reconstructing the encoded information, information which has already been transmitted from the upper layer or part of the information, information which has already been transmitted within the same layer or part of the information, or information for reconstructing contents of information which has already been transmitted from the upper layer or within the same layer or contents of part of the information, upon adding the information to the encoded information; and

means for inserting designation information with a predetermined bit pattern which indicates addition of the reconstruction information in the header information.

6. An encoding apparatus comprising:

means for adding a sync signal to header information required for encoding, and encoding the information;

means for transmitting, as reconstruction information for reconstructing the encoded information, information which has already been transmitted or part of the information or information indicating contents

of the information or contents of part of the information, upon adding the information to the encoded information; and

means for inserting designation information with a predetermined bit pattern which indicates addition of the reconstruction information in the header information.

7. An apparatus according to claim 5 ~~or 6~~, wherein information for changing encoding processing of a portion associated with the header information from encoding processing before the portion associated with the header information to another type of encoding processing is inserted in the header information, and the information is transmitted.

8. An apparatus according to claim 7, wherein the reconstruction information is information for changing the encoding processing or information for reconstructing part of the encoding processing.

9. An apparatus according to claim 5 ~~or 6~~, wherein the encoded information contains a picture code stream obtained by compress-encoding a picture signal, and the reconstruction information contains information indicating a display timing of each picture frame of the picture code stream.

10. An apparatus according to claim 5 ~~or 6~~, wherein the encoded information contains a picture code stream obtained by compress-encoding a picture signal,

and the reconstruction information contains information indicating a prediction mode of each picture frame of the picture code stream.

11. A decoding apparatus comprising:

means for segmenting encoded information into not less than two layers, and adding a sync signal and header information required for decoding to each layer;

means for detecting designation information having a predetermined bit pattern from the header information; and

means for decoding the encoded information by using information, transmission of which is indicated by the detected designation information, as a substitute for information which has already been transmitted from the upper layer or part of the information, information which has already been transmitted within the same layer or part of the information, or information for reconstructing contents of information which has already been transmitted from the upper layer or within the same layer or contents of part of the information.

12. A decoding apparatus comprising:

means for receiving encoded information which is transmitted after a sync signal and header information required for decoding are added to the encoded information;

means for detecting designation information having a predetermined bit pattern from the header

information; and

means for, when the pattern is detected, decoding the encoded information by using information, transmission of which is indicated by the designation information, as a substitute for information which has already been transmitted or part of the information or information capable of reconstructing contents of the information or contents of part of the information.

13. An apparatus according to claim 11 ~~or 12~~, further comprising means for detecting change designation information having a predetermined bit pattern from the header information, and changing decoding processing of a portion associated with the header information from decoding processing of a portion before the portion associated with the header information to another type of decoding processing in accordance with the detected information.

14. An apparatus according to claim 11 ~~or 12~~, wherein the encoded information contains a picture code stream obtained by compress-encoding a picture signal, and the reconstruction information contains information indicating a prediction mode of each picture frame of the picture code stream.

15. An apparatus according to claim 13, wherein the reconstruction information is information for changing the encoding processing or information for reconstructing part of the information.

16. An apparatus according to claim 11 ~~or~~ 12, wherein the encoded information contains a picture code stream obtained by compress-encoding a picture signal, and the reconstruction information contains information indicating a display timing of each picture frame of the picture code stream.

17. An apparatus according to claim 16, further comprising:

means for decoding information indicating a display timing of a picture frame and transmitted as the reconstruction information; and

means for checking whether decoded display timing information complies with a predetermined rule or a rule indicated by independently transmitted information, thereby checking whether a transmission path error is introduced into the timing information.

18. An encoding apparatus comprising:

not less than one picture encoding means for receiving and compress-encoding a picture signal;

multiplexing means for multiplexing a picture code stream output from each of said picture encoding means and other data information code streams, and outputting a multiplexing code stream containing a multiplexed header and a multiplexed payload;

means for inserting header information contained in the picture code stream or part thereof in the multiplexed header; and

means for adding an error correction/detection code generated from information in the multiplexed header to the multiplexed header, providing error protection for the header information in the picture code stream together with another information associated with multiplexing in the multiplexed header by using an error correction/detection code, and transmitting the header information and other information.

19. An apparatus according to claim 18, wherein the header information in the picture code stream, which is contained in the multiplexed header, contains information indicating a display timing of a picture frame in the picture code stream.

20. A decoding apparatus comprising:

demultiplexing means for receiving a multiplexing code stream which is generated by multiplexing a picture code stream and other code streams and contains a multiplexed header and a multiplexed payload, with error correction being provided for header information in the picture code stream or part of the information, together with another information associated with multiplexing in the multiplexed header, by using an error correction/detection code, and demultiplexing the multiplexing code stream into one or a plurality of picture code streams and other data information code streams;

picture decoding means for decoding the

demultiplexed picture code stream; and

means for, when an error is detected in header information in the picture code stream, decoding the picture code stream by using the header information in the picture code stream which is contained in the multiplexed header.

21. An apparatus according to claim 20, wherein the header information in the picture code stream which is contained in the multiplexed header contains information indicating a display timing of a picture frame in the picture code stream.

22. A recording medium on which a code stream is recorded, the code stream having header information and reconstruction information added thereto, the header information being required for decoding, the reconstruction information being used to reconstruct contents of the header information or contents of part of the header information, and the code stream being decoded by using the reconstruction as a substitute for the header information when an error is detected in the header information or part thereof by a decoding apparatus.

23. An encoding/multiplexing apparatus comprising:

means for segmenting a plurality of types of compressed code strings obtained by compress-encoding an input signal in encoding units;

means for generating a multiplexed unit code

stream having a length corresponding to an integer multiple of a predetermined length by adding stuffing bits to the segmented compressed code string in segmenting units; and

means for generating a multiplexing code stream by multiplexing the multiplexed unit code strings.

24. A decoding/demultiplexing apparatus comprising:

means for receiving a multiplexing code stream and demultiplexing a multiplexed unit code stream;

means for separating a compressed code string in the multiplexed unit code stream from stuffing bits added thereto;

means for decoding the separated compressed code string; and

means for detecting an error in the multiplexing code stream by comparing a position at which decoding of the compressed code string by said decoding means is ended with a start position of the stuffing bits.

25. An apparatus according to claim 23, wherein the stuffing bits can be uniquely decoded in a reverse direction.

26. An apparatus according to claim 24, wherein said separating means determines a decoding start position of a compressed code string in the reverse direction by decoding the stuffing bits in the reverse direction, and said decoding means starts decoding in

the reverse direction from the determined start position.

27. An encoding/multiplexing apparatus comprising:

compress-encoding means for encoding an input signal so as to segment the signal in given encoding units, thereby generating compressed code strings;

means for generating a multiplexing code stream by collecting sync words having the same degree of importance from the segmented compressed code strings; and

means for inserting codes indicating delimiters in the encoding units in the multiplexing code stream generated in accordance with the degrees of importance.

28. A decoding/demultiplexing apparatus comprising:

means for demultiplexing a multiplexing code stream obtained by collecting compressed code strings in accordance with the degrees of importance of code words and multiplexing the compressed code strings;

means for specifying encoding units corresponding to segmented code streams by detecting codes indicating code delimiters in the multiplexing code stream;

means for generating a compressed code stream by collecting code strings corresponding to identical code delimiters from the multiplexing code stream which is multiplexed in accordance with the degrees of importance; and

means for decoding the compressed code stream.

29. An information transmission method comprising the steps of:

generating an encoded data stream by encoding a video signal; and

segmenting the encoded data into a plurality of layers, adding important header information required for decoding to at least some of upper and lower layers, and transmitting the data.

30. A method according to claim 29, further comprising:

segmenting the encoded data stream into a plurality of layers, and starting decoding from an upper layer;

performing an error check with respect to decoded data; and

extracting important header information from the decoded data, and continuing decoding by using the important header information on a lower layer as a substitute in accordance with an error check result.